P07303 Series Customer Display

User Manual

2007 August V1.7

Manual Version 1.7

Safety

IMPORTANT SAFETY INSTRUCTIONS

1. To disconnect the machine from the electrial power supply, turn off the power switch and remove the power cord plug from the wall socket. The wall socket must be easily accessible and in close proximity to the machine.
2. Read these instructions carefully. Save these instructions for future reference.
3. Follow all warnings and instructions marked on the product.
4. Do not use this product near water.
5. Do not place this product on an unstable cart,stand,or table.The product may fall, causing serious damage to the product.
6. Slots and openings in the cabinet and the back or bottom are provided for ventilation;to ensure reliable operation of the product and to protect it from overheating. These openings must not be blocked or covered.The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface.This product should never be placed near or over a radiator or heat register,or in a built-in installation unless proper ventilation is provided.
7. This product should be operated from the type of power indicated on the marking label.If you are not sure of the type of power available, consult your dealer or local power company.
8. Do not allow anything to rest on the power cord. Do not locate this product where persons will walk on the cord.
9. Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock.Never spill liquid of any kind on the product.

FCC

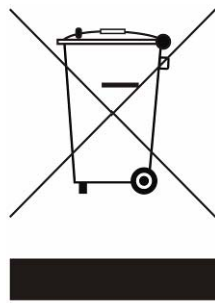
This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference
(2) This device must accept any interference received, including interference that may cause undesired operation.

CE Mark

This device complies with the requirements of the EEC directive 89/336/EEC with regard to “Electromagnetic compatibility” and 73/23/EEC “Low Voltage Directive”.

LEGISLATION AND WEEE SYMBOL

2002/96/EC Waste Electrical and Electronic Equipment Directive on the treatment, collection, recycling and disposal of electric and electronic devices and their components.



The crossed dustbin symbol on the device means that it should not be disposed of with other household wastes at the end of its working life. Instead, the device should be taken to the waste collection centers for activation of the treatment, collection, recycling and disposal procedure.
To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take this item for environmentally safe recycling.

Business users should contact their supplier and check the terms and conditions of the purchase contract.

This product should not be mixed with other commercial wastes for disposal.

Table of Contents

1. Dip Switch and Software Setting

1.1. Command Type Selection

SW1	SW2	SW3	Command Type	Demo Mode Support	Default
ON	ON	ON	POS7300	No	*
OFF	ON	ON	EPSON ESC/POS	Yes	
ON	OFF	ON	ADM 787/ ADM 788	No	
OFF	OFF	ON	DSP800	Yes	
ON	ON	OFF	AEDEX/ EMAX	No	
OFF	ON	OFF	UTC/P	No	
ON	OFF	OFF	UTC/S	No	
OFF	OFF	OFF	CD5220	Yes	

1.2. Baud Rate Selection

SW8	SW9	Baud Rate (bps)	Default
ON	ON	4800	
OFF	ON	9600	*
ON	OFF	19200	
OFF	OFF	38400	

1.3. Parity Check Selection

SW10	Parity Check	Default
ON	None-parity	*
OFF	Even-parity	

1.4. Command Control

SW12	Function
ON	Depend on SW1~SW11 setting
OFF	Bypass SW1~SW11 setting, fixed at: ➢ Command type: POS7300, ➢ Baud rate: 9600 ➢ Parity check: None-parity ➢ Demo mode: Disable ➢ International char set: USA, standard Europe

1.5. International Character Set

ID	SW 4	SW 5	SW 6	SW 7	SW 11	Character Set (20h – 7Fh)	Code Table (80H-FFH)	Default	Note
0	ON	ON	ON	ON	OFF	U.S.A.	CP-437 (USA, Standard Europe)	*	
1	OFF	ON	ON	ON	OFF	FRANCE	CP-858 (Multilingual + Euro Symbol)		
2	ON	OFF	ON	ON	OFF	GERMANY			
3	OFF	OFF	ON	ON	OFF	U.K.			
4	ON	ON	OFF	ON	OFF	DENMARK I			
5	OFF	ON	OFF	ON	OFF	SWEDEN			
6	ON	OFF	OFF	ON	OFF	ITALY			
7	OFF	OFF	OFF	ON	OFF	SPAIN			
8	ON	ON	ON	OFF	OFF	JAPAN	Katakana		
9	OFF	ON	ON	OFF	OFF	NORWAY	CP-858 (Multilingual+ Euro Symbol)		
10	ON	OFF	ON	OFF	OFF	DENMARK II			
11	OFF	OFF	ON	OFF	OFF	Slawie			
12	ON	ON	OFF	OFF	OFF	RUSSIA			
13	OFF	ON	OFF	OFF	OFF	U.S.A	CP-860 (Portuguese)		
14	ON	OFF	OFF	OFF	OFF	U.K.	Greek		
15	OFF	OFF	OFF	OFF	OFF	U.S.A	CP-852 (Hungary)		
16	ON	ON	ON	ON	ON	U.S.A	CP-862 (Hebrew)		
17	OFF	ON	ON	ON	ON	U.S.A	CP-863 (Canadian-French)		
18	ON	OFF	ON	ON	ON	U.S.A	CP-865 (Nordic)		
19	OFF	OFF	ON	ON	ON	U.S.A	CP-866 (Cyrillic)		
20	ON	ON	OFF	ON	ON	U.S.A	Windows-1251 (Cyrillic)		
21	OFF	ON	OFF	ON	ON	U.S.A	Windows-1252		
22	ON	OFF	OFF	ON	ON	U.S.A	Windows-1255 (Hebrew)		
23	OFF	OFF	OFF	ON	ON	U.S.A	Windows-1257 (Baltic)		

2. Software Status Setting Commands

When the system is POWER ON, it will read the DIP switch to set the **Command Type**, **Baud Rate**, **Parity**, **Demo Mode** and **International Character**. User can re-set the Software Status Setting Commands as following:

2.1. Baud Rate Setting Command

STX 05 B n ETX	/Change the baud rate setting/	
ASCII Format	STX 05 B **n** ETX	
Dec. Format	[02] [05] [66] **n** [03]	
Hex. Format	[02h][05h][42h] **n** [03h]	30h≦**n**≦33h
Description	Change the display communication baud rate. The baud rate setting can be selected from 4800 to 38400.	

n	Baud rate
30h	4800
31h	9600
32h	19200
33h	38400

2.2. Parity Check Setting Command

STX 05 P n ETX	/Change the Parity check setting/	
ASCII Format	STX 05 P **n** ETX	
Dec. Format	[02] [05] [80] **n** [03]	
Hex. Format	[02h][05h][50h] **n** [03h]	**n**=30h, 31h
Description	Change the display communication parity. Set 8 data bit and the parity set for even or non-parity.	

n	Parity check
30h	None-parity
31h	Even-parity

2.3. International Character Set Setting Command

STX 05 S n ETX	/Change the international character set/
ASCII Format	STX 05 S **n** ETX
Dec. Format	[02] [05] [83] **n** [03]
Hex. Format	[02h][05h][53h] **n** [03h] 30h≦**n**≦4Fh
Description	Change the display international character font.

n	Character Set (20h – 7Fh)	Code Table (80H-FFH)	Note
30h	U.S.A.	CP-437 (USA, Standard Europe)	
31h	FRANCE	CP-858 (Multilingual + Euro Symbol)	
32h	GERMANY		
33h	U.K.		
34h	DENMARK I		
35h	SWEDEN		
36h	ITALY		
37h	SPAIN		
38h	JAPAN	Katakana	
39h	NORWAY	CP-858 (Multilingual+ Euro Symbol)	
3Ah	DENMARK II		
3Bh	Slawie		
3Ch	RUSSIA		
3Dh	U.S.A	CP-860 (Portuguese)	
3Eh	U.K.	Greek	
3Fh	U.S.A	CP-852 (Hungary)	
40h	U.S.A	CP-862 (Hebrew)	
41h	U.S.A	CP-863 (Canadian-French)	
42h	U.S.A	CP-865 (Nordic)	
43h	U.S.A	CP-866 (Cyrillic)	
44h	U.S.A	Windows-1251 (Cyrillic)	
45h	U.S.A	Windows-1252	
46h	U.S.A	Windows-1255 (Hebrew)	
47h	U.S.A	Windows-1257 (Baltic)	

2.4. Command Type Setting Command

STX 05 C n ETX	/Change the command type setting/
ASCII Format	STX 05 C **n** ETX
Dec. Format	[02] [05] [67] **n** [03]
Hex. Format	[02h][05h][43h] **n** [03h] 30h≦ **n** ≦37h
Description	This command will change the command type and initialize the display. The display emulation mode is based on DSP800/ ESC/ ADM 787/ POS7300/ AEDEX/ UTC/ CD5220 mode.

n	Command Type	n	Command Type
30h	POS7300	34h	AEDEX
31h	ESC/POS	35h	UTC/P
32h	ADM 787	36h	UTC/S
33h	DSP800	37h	CD5220

2.5. Run Demo message

STX 05 D 08 ETX	/Run demo message/
ASCII Format	STX 05 D 08 ETX
Dec. Format	[02][05][68][08][03]
Hex. Format	[02h][05h][44h][08h][03h]
Description	Run demo message for the display. The display emulation mode is based on DSP800, EPSON ESC/POS, CD5220 command type.

2.6. Show Firmware Version

STX 05 V 01 ETX	/Show Firmware Version/
ASCII Format	STX 05 V 01 ETX
Dec. Format	[02][05][86][01][03]
Hex. Format	[02h][05h][56h][01h][03h]
Description	Show firmware version.

3. Command List Table

Command List Table – 1

	POS7300	CD5220	EPSON D101	UTC/S	UTC/P	AEDEX	ADM788	DSP800
Move cursor right	O	O	O					
Move cursor left	O	O	O					
Move cursor up	O	O	O					
Move cursor down	O	O	O					
Move cursor to right-most position	O	O	O					
Move cursor to left-most position	O	O	O					
Move cursor to home position	O	O	O					
Move cursor to bottom position		O	O					
Move cursor to specified position	O	O	O					O
Clear display screen	O	O	O	O			O	
Clear cursor line	O	O	O					
Brightness adjustment		O	O					O
Blink display screen	O	O	O					O
Initialize display	O	O	O					O
Select character code table		O	O					
Select international character set		O	O					O
Select/cancel reverse character			O					
Overwrite mode	O	O	O	O				
Vertical scroll mode	O	O	O	O				
Horizontal scroll mode	O	O	O					
Set/cancel the window range		O	O					
Select peripheral device		O	O					O
Set starting/ending position of macro definition			O					
Execute and quit macro			O					
Execute self-test		O	O					O
Display time			O		O	O		
Display time continuously			O					
Display position				O				
Cursor on/off	O	O	O	O				
Change to UTC enhanced mode				O				
Change to UTC standard mode					O			
Write string to upper line	O	O			O	O		

Command List Table – 2

	POS7300	CD5220	EPSON D101	UTC/S	UTC/P	AEDEX	ADM788	DSP800
Upper line message continuous scroll	O	O			O	O		
Bottom line message scroll continuously	O							
Message vertical down scroll continuously	O							
Message vertical upper scroll continuously	O							
Carriage return	O			O			O	
Line feed	O			O				
Back space	O			O				
Horizontal tab	O			O				
Command type select		O	O					O
Upper line message scroll once pass					O	O		
Change attention code					O	O		
Two line display					O	O		
Clear upper line and move cursor to upper left-end position							O	
Clear bottom line and move cursor to bottom left-end position							O	
Set period to upper line, last n position							O	
Set line blinking, upper line	O						O	
Clear line blinking, upper line	O						O	
Clear field 1 and move cursor to field 1, first position							O	
Clear field 2 and move cursor to field 2,first position							O	
Clear display range from n position to m position and move cursor to n position								O
Save the current displaying data to n layer for demo display								O
Turn annunciator on/off			O					
Specify period			O					
Specify comma			O					
Specify semicolon (period + comma)			O					

4. Command Details

4.1. POS7300 Series Command List

POS7300 Standard Mode Command List-1

Command	Code (hex)	Function Description
ESC F A **[DATA]** CR	1B 46 41 **[DATA]** 0D	Write string to upper line ➢ Maximal **[DATA]** length is 40
ESC F B **[DATA]** CR	1B 46 42 **[DATA]** 0D	Write string to lower line ➢ Maximal **[DATA]** length is 40
ESC F D **[DATA]** CR	1B 46 44 **[DATA]** 0D	Upper line message scroll continuously ➢ Maximal **[DATA]** length is 40
ESC F O **[DATA]** CR	1B 46 4F **[DATA]** 0D	Bottom line message scroll continuously ➢ Maximal **[DATA]** length is 40
ESC P **x y**	1B 50 **x y**	Move cursor to specified position ➢ **x** = 1 ~ 14h, for columns location. ➢ **y** = 1 ~ 2, for lines location.
ESC _ **n**	1B 5F **n**	Set cursor on/off ➢ **n** = 00 ~ 01
ESC DC1	1B 11	Overwrite mode
ESC DC2	1B 12	Vertical scroll mode
ESC DC3	1B 13	Horizontal scroll mode
ESC @	1B 40	Initialize display
US MD1 **n**	1F 01 **n**	Message vertical upper scroll continuously ➢ **n** = 01 ~ 0Ch
US MD2 **n**	1F 02 **n**	Message vertical down scroll continuously ➢ **n** = 01 ~ 0Ch
US DC1 **n**	1F 11 **n**	Set line blinking ➢ **n** = '1' ~ '2' ■ **n** = '1' up line ■ **n** = '2' low line
US DC2 **n**	1F 12 **n**	Clear line blinking ➢ **n** = '1' ~ '2' ■ **n** = '1' up line ■ **n** = '2' low line
US E **n**	1F 45 **n**	Blink display screen ➢ **n** = 00h ~ FFh ■ **n** = 0 for no blink
NULL H	0 48	Move cursor up
NULL K	0 4B	Move cursor left
NULL M	0 4D	Move cursor right
NULL P	0 50	Move cursor down
NULL G	0 47	Move cursor to left-most position
NULL O	0 4F	Move cursor to right-most position

POS7300 Standard Mode Command List-2

Command	Code (hex)	Function Description
BS	08	Back space
HT	09	Horizontal tab
LF	0A	Line feed
HOM	0B	Move cursor to home position
CLR	0C	Clear display screen
CR	0D	Carriage return
CAN	18	Clear cursor line, and clear string mode
ESC = **n**	1B 3D **n**	Select peripheral device, display or printer ➢ **n** = 1~3 ■ **n** = '1': enable printer only ■ **n** = '2': enable display only ■ **n** = '3': enable both of printer and display

4.2. CD5220 Standard Mode Command List

CD5220 Standard Mode Command List-1

Command	Code (hex)	Function Description
ESC DC1	1B 11	Overwrite mode
US SOH	1F 01	
ESC DC2	1B 12	Vertical scroll mode
US STX	1F 02	
ESC DC3	1B 13	Horizontal scroll mode
US ETX	1F 03	
ESC Q **[DATA]** CR	1B 51 41 **[DATA]** 0D	Set the string display mode, write string to upper line. *[1] ➢ Maximal **[DATA]** length is 20
ESC Q **[DATA]** CR	1B 51 42 **[DATA]** 0D	Set the string display mode, write string to lower line. *[1] ➢ Maximal **[DATA]** length is 20
ESC Q **[DATA]** CR	1B 51 44 **[DATA]** 0D	Upper line message scroll continuously. *[1] *[2] ➢ Maximal **[DATA]** length is 40
ESD [D	1B 5B 44	Move cursor left
BS	08	
ESC [C	1B 5B 43	Move cursor right
HT	09	
ESC [A	1B 5B 41	Move cursor up
US LF	1F 0A	
ESC [B	1B 5B 42	Move cursor down
LF	0A	
ESC [H	1B 5B 48	Move cursor to home position
HOM	0B	
ESC [L	1B 5B 4C	Move cursor to left-most position
CR	0D	
ESC [R	1B 5B 52	Move cursor to right-most position
US CR	1F 0D	
ESC [K	1B 5B 4B	Move cursor to bottom position
US B	1F 42	
ESC # **n**	1B 23 **n**	Command type select ➢ **n** = 30h ~ 37h
US @	1F 40	Execute self test
US E **n**	1F 45 **n**	Blink display screen ➢ **n** = 00h ~ FFh ■ **n** = 0 for no blink
ESC l **x y**	1B 6C **x y**	Move cursor to specified position ➢ **x** = 1 ~ 14h, for columns location. ➢ **y** = 1,2, for lines location.
US $ **x y**	1F 24 **x y**	
ESC @	1B 40	Initialize display

CD5220 Standard Mode Command List-2

Command	Code (hex)	Function Description
ESC W **s x1 x2 y**	1B 57 **s x1 x2 y**	Set or cancel the window range at horizontal scroll mode ➢ 1 ≦ **x1** ≦ **x2** ≦ 14h, for columns location. ➢ **y** = 1~2, for lines location. ➢ **s** = 0: cancel **s** = 1: set
CLR	0C	Clear display screen, and clear string mode
CAN	18	Clear cursor line, and clear string mode
ESC * **n**	1B 2A **n**	Brightness adjustment ➢ **n** = 1 ~ 4, **n** = 4 for highest brightness
US X **n**	1F 58 **n**	
ESC _ **n**	1B 5F **n**	Set cursor on/off ➢ **n** = 1: cursor on **n** = 0: cursor off
ESC f **n**	1B 66 **n**	Select international fonts ➢ About **n**, refer. *3
ESC c **n**	1B 63 **n**	Select fonts, ASCII code or JIS code, ➢ About **n**, refer. *4
ESC = **n**	1B 3D **n**	Select peripheral device, display or printer ➢ **n**='1': enable printer only **n**='2': enable display only **n**='3': enable both of printer and display

Note:

1. While using command “ESC Q A” or “ESC Q B”, other commands cannot be used except when using command “CLR” or “CAN” to change operating mode.
2. When using command “ESC Q D”, the upper line message will scroll continuously until a new command is received, it will then clear the upper line and move the cursor to the upper left-end position.
3. The parameter of international fonts set control by command “ESC f **n**”.

Parameter “n”		International Font Set	Parameter “n”		International Font Set
Character	Hex		Character	Hex	
‘A’	41h	U.S.A.	‘W’	57h	Sweden
‘G’	47h	Germany	‘D’	44h	Denmark I
’I’	49h	Italy	‘E’	45h	Denmark II
‘J’	4Ah	Japan	‘L’	4Ch	Slavonic
‘U’	55h	U.K.	‘R’	52h	Russia
‘F’	46h	France			
‘S’	53h	Spain			
‘N’	4Eh	Norway			

4. The parameter of the code table control by command “ESC c n”.

Parameter “n”		International Font Set
Character	**Hex**	
‘A’	41h	Compliance with ASCII code (CP-437)
‘J’	4Ah	Compliance with JIS code (Katakana)
‘L’	4Ch	Compliance with Slawie code
‘R’	52h	Compliance with RUSSIA code
‘M’	4Dh	CP-850 (Multilingual)
‘P’	50h	CP-858 (Multilingual+ Euro Symbol)
‘p’	70h	CP-860 (Portuguese)
‘F’	46h	CP-863 (Canadian-French)
‘N’	4Eh	CP-865 (Nordic)
‘u’	75h	CP-852 (Hungary)
‘H’	48h	CP-862 (Hebrew)
‘C’	43h	CP-866 (Cyrillic)
‘G’	47h	Greek
‘c’	63h	Windows-1251 (Cyrillic)
‘W’	57h	Windows-1252
‘h’	68h	Windows-1255 (Hebrew)
‘B’	42h	Windows-1257 (Baltic)

4.3. UTC Standard Mode Command List

Command	Code (hex)	Function Description
BS	08	Back space
HT	09	Horizontal tab
LF	0A	Line feed
CR	0D	Carriage return
DLE **n**	10 **n**	Display position ➢ **n** = 0 ~ 27h, for location.
DC1	11	Over write display mode
DC2	12	Vertical scroll mode
DC3	13	Cursor on
DC4	14	Cursor off
US	1F	Clear display
ESC d	1B 64	Change to UTC enhanced mode

4.4. UTC Enhanced Mode Command List

Command	Code (hex)	Function Description
ESC u A **[DATA]** CR	1B 75 41 **[DATA]** 0D	Upper line display ➢ Maximal **[DATA]** length is 20
ESC u B **[DATA]** CR	1B 75 42 **[DATA]** 0D	Bottom line display ➢ Maximal **[DATA]** length is 20
ESC u D **[DATA]** CR	1B 75 44 **[DATA]** 0D	Upper line message scroll continuously ➢ Maximal **[DATA]** length is 40
ESC u E **h h** : **m m** CR	1B 75 45 **h h** ':' **m m** 0D	Display time ➢ **h**, **m** = '0' ~ '9'
ESC u F **[DATA]** CR	1B 75 46 **[DATA]** 0D	Upper line message scroll Once pass ➢ Maximal **[DATA]** length is 40
ESC u H **n m** CR	1B 75 48 **n m** 0D	Change attention code ➢ **n** = 1 ~ 20h ➢ **m** = 1 ~ 20h
ESC u I **[DATA]** CR	1B 75 49 **[DATA]** 0D	Two line display ➢ Maximal **[DATA]** length is 40
ESC RS CR	1B 0F 0D	Change to UTC standard mode

4.5. AEDEX/EMAX Mode Command List

Command	Code (hex)	Function Description
! # 4 **[DATA]** CR	21 23 34 **[DATA]** 0D	Upper line message scroll ➢ Maximal **[DATA]** length is 40
! # 5 **h h** : **m m** CR	21 23 35 **h h** ':' **m m** 0D	Display time ➢ **h**, **m** = '0' ~ '9'
! # 8 **n m** CR	21 23 38 **n m** 0D	Change attention code ➢ **n**, **m** = 1 ~ 20
! # 9 **[DATA]** CR	21 23 39 **[DATA]** 0D	Two line display ➢ Maximal **[DATA]** length is 40
! # 6 **[DATA]** CR	21 23 36 **[DATA]** 0D	Upper line message scroll once pass ➢ Maximal **[DATA]** length is 40

4.6. ADM787/788 mode command list

Command	Code (hex)	Function Description
CLR	0C	Clear display
CR	0D	Carriage return
SLE1	0E	Clear upper line and move cursor to upper left-end position
SLE2	0F	Clear bottom line and move, Cursor to bottom left-end position
DC0 **n**	10 **n**	Set period to upper line last n position ➢ **n** = 31H ~ 37H
DC1 **n**	11 **n**	Set line blinking, upper line ➢ **n** = '1' ~ '2' ■ **n** = '1': up line ■ **n** = '2': low line
DC2 **n**	12 **n**	Clear line blinking, upper line ➢ **n** = '1' ~ '2' ■ **n** = '1': up line ■ **n** = '2': low line
SF1	1E	Clear field 1 and move cursor to field 1, first position
SF2	1F	Clear field 2 and move cursor to field 2, first position

4.7. DSP800 Mode Command List

Command	Code (hex)	Function Description
EOT SOH I **n** ETB	04 01 49 **n** 17	Select international character set ➢ **n** = 00 ~ 0Fh or 30 ~ 3Fh
EOT SOH P **n** ETB	04 01 50 **n** 17	Move cursor to specified position ➢ **n** = 31h ~ 58h
EOT SOH C **n m** ETB	04 01 43 **n m** 17	Clear display range from n position to m position and move cursor to n position ➢ 31h ≦ **n** ≦ **m** ≦ 58h
EOT SOH S **n** ETB	04 01 53 **n** 17	Save current view message to n layer for demo view data ➢ **n** = 31h ~ 35h
EOT SOH D **n m** ETB	04 01 44 **n m** 17	Display the saved demo message ➢ **n** = 31h ~ 4Fh ➢ **m** = 31h ~ 33h
EOT SOH A **n** ETB	04 01 41 **n** 17 **n** =31h-34h	Brightness adjustment
EOT SOH F **n** ETB	04 01 46 **n** 17 00h□**n**□FFh	Blink display Screen ➢ **n** = 00h ~ FFh, **n** = 0 for no blink
EOT SOH # **n** ETB	04 01 23 **n** 17 **n** =30~37h	Command type select
EOT SOH % ETB	04 01 25 17	Initialize display
EOT SOH @ ETB	04 01 40 17	Execute self-test
EOT SOH = **n** ETB	04 01 3D **n** 17	Select peripheral device, display or printer ➢ **n** = '1': enable printer only **n** = '2': enable display only **n** = '3': enable both of printer and display

4.8. EPSON ESC/POS Command List

EPSON ESC/POS Command List-1

Command	Code (hex)	Function Description
US r **n**	1F 72 **n**	Select/cancel reverse character. ➢ **n** = 00,01
US MD1	1F 01	Specify overwrite mode.
US MD2	1F 02	Specify vertical scroll mode.
US MD3	1F 03	Specify horizontal scroll mode.
CAN	18	Clear cursor line
ESC # **n**	1B 23 **n**	Command type select ➢ **n** = 30h ~ 38h
US # **n x**	1F 23 **n x**	Turn annunciator on/off. ➢ **n** = 0 for annunciator off **n** = 1 for annunciator on ➢ **x** = 1 ~ 14h, for columns location.
US C **n**	1F 43 **n**	Set cursor on/off ➢ **n** = 00, 01
BS	08	Move cursor left
HT	09	Move cursor right
US LF	1F 0A	Move cursor up
LF	0A	Move cursor down
US CR	1F 0D	Move cursor to right-most position
CR	0D	Move cursor to left-most position
HOM	0B	Move cursor to home position
US B	1F 42	Move cursor to bottom position
US $ **x y**	1F 24 **x y**	Move cursor to specified position ➢ **x** = 1 ~ 14h, for columns location. ➢ **y** = 1 ~ 2, for lines location.
CLR	0C	Clear display screen
US E **n**	1F 45 **n**	Blink display screen ➢ **n** = 00h ~ FFh **n** = 0 for no blink
ESC @	1B 40	Initialize display
US . **n**	1F 2E **n**	Specify period ➢ **n** = a displayable character code
US , **n**	1F 2C **n**	Specify comma ➢ **n** = a displayable character code
US ; **n**	1F 3B **n**	Specify semicolon (period + comma) ➢ **n** = a displayable character code
US :	1F 3A	Set starting/ending position of macro definition. Ex.: 1F 3A … (macro string) … 1F 3A
US @	1F 40	Execute self - test
US T h m	1F 54 h m	Display time ➢ 0 ≦ h ≦ 17h, for hours setting. ➢ 0 ≦ m ≦ 3Bh, for minutes setting.

EPSON ESC/POS Command List-2

Command	Code (hex)	Function Description
US ^ **n m**	1F 5E **n m**	Execute and quit macro. It's an interval of n between the two words. It's an interval of m between the two strings. ➢ 00 ≦ (**n**, **m**) ≦ FFh ■ **n** = Word time ■ **m** = show string time
US U	1F 55	Display time continuously
US X **n**	1F 58 **n**	Brightness adjustment ➢ **n** = 1 ~ 4
ESC W **n s x1 y1 x2 y2**	1B 57 **n s x1 y1 x2 y2**	Set or cancel the window range ➢ **n** = 1 ~ 4, for window number ➢ **s** = 0: cancel **s** = 1: set ➢ 1 ≦ **x1** ≦ **x2** ≦ 14h, for columns location. ➢ 1 ≦ **y1** ≦ **y2** ≦ 2, for lines location.
ESC R **n**	1B 52 **n**	Select international character set (20H~7Fh). ➢ **n** = 00 ~ 0Fh. See note *1
ESC t **n**	1B 74 **n**	Select character code table (80H~FFh). ➢ **n** = 00 ~ 1Fh. See note *2
ESC = **n**	1B 3D **n**	Select peripheral device, display or printer ➢ **n** = '1': enable printer only **n** = '2': enable display only **n** = '3': enable both of printer and display

Note:

1. Select international character set (20H~7Fh) for command "ESC R **n**"

n	international character set	n	international character set	n	international character set
0h	U.S.A.	**6h**	ITALY	**Ch**	RUSSIA
1h	FRANCE	**7h**	SPAIN	**Dh**	No used
2h	GERMANY	**8h**	JAPAN	**Eh**	No used
3h	U.K.	**9h**	NORWAY	**Fh**	No used
4h	DENMARK I	**Ah**	DENMARK II		
5h	SWEDEN	**Bh**	SLAVONIC		

2. Select character code table (80H~FFh) for command "ESC t **n**"

n	character code table	n	character code table	n	character code table
0h	CP-437 (USA, Standard Europe)	**6h**	Slawie	**Ch**	Windows-1251 (Cyrillic)
1h	Katakana (for Japan)	**7h**	Russia	**Eh**	Windows-1255 (Hebrew)
2h	CP-850 (Multilingual)	**8h**	Greek	**Fh**	Windows-1257 (Baltic)
3h	CP-860 (Portuguese)	**9h**	CP-852 (Hungary)	**10h**	Windows-1252
4h	CP-863 (Canadian-French)	**Ah**	CP-862 (Hebrew)	**13h**	CP-858 (Multilingual+ Euro Symbol)
5h	CP-865 (Nordic)	**Bh**	CP-866 (Cyrillic)		

5. Character Set

5.1. Character Code 20H – 7FH

5.1.1 International Character Sets

Character Code Number												
Country / Hex	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
Country / Dec	35	36	64	91	92	93	94	96	123	124	125	126
U.S.A	#	$	@	[	\	]	^	`	{	¦	}	~
France	#	$	à	°	ç	§	^	`	é	ù	è	¨
Germany	#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	β
U.K	£	$	@	[	\	]	^	`	{	¦	}	~
Denmark I	#	$	@	Æ	Ø	Å	^	`	æ	ø	å	~
Sweden	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
Italy	#	$	@	°	\	é	^	ù	à	ò	è	ì
Spain	Pt	$	@	¡	Ñ	¿	^	`	¨	ñ	}	~
Japan	#	$	@	[	¥	]	^	`	{	¦	}	~
Norway	#	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
Denmark II	#	$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
Slavonic	#	$	@	[	\	]	^	`	{	¦	}	~
Russia	#	$	@	[	\	]	^	`	{	¦	}	~

5.1.2 USA, Standard Character Sets

	00h	01h	02h	03h	04h	05h	06h	07h	08h	09h	0Ah	0Bh	0Ch	0Dh	0Eh	0Fh
20h		!	“	#	$	%	&	‘	(	)	*	+	,	-	.	/
30h	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
40h	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
50h	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
60h	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
70h	p	q	r	s	t	u	v	w	x	y	Z	{	¦	}	~	

5.2. Character Code 80H – FFH

5.2.1 CP-437 (USA, Standard Europe)

	00h	01h	02h	03h	04h	05h	06h	07h	08h	09h	0Ah	0Bh	0Ch	0Dh	0Eh	0Fh
80h	Ç	ü	é	â	ä	à	å	ç	ê	ë	è	ï	î	ì	Ä	Å
90h	É	æ	Æ	ô	ö	ò	û	ù	ÿ	Ö	Ü	¢	£	¥	Pt	ƒ
A0h	á	í	ó	ú	ñ	Ñ	ª	º	¿	⌐	¬	½	¼	¡	«	»
B0h	░	▒	▓	│	┤	╡	╢	╖	╕	╣	║	╗	╝	╜	╛	┐
C0h	└	┴	┬	├	─	┼	╞	╟	╚	╔	╩	╦	╠	═	╬	╧
D0h	╨	╤	╥	╙	╘	╒	╓	╫	╪	┘	┌	█	▄	▌	▐	▀
E0h	α	ß	Γ	π	Σ	σ	µ	τ	Φ	θ	Ω	δ	∞	ø	ε	∩
F0h	≡	±	≥	≤	⌠	⌡	÷	≈	°	•	·	√	^{n}	^{2}	■	

5.2.2 CP-850 (Multilingual)

	00h	01h	02h	03h	04h	05h	06h	07h	08h	09h	0Ah	0Bh	0Ch	0Dh	0Eh	0Fh
80h	Ç	ü	é	â	ä	à	å	ç	ê	ë	è	ï	î	ì	Ä	Å
90h	É	æ	Æ	ô	ö	ò	û	ù	ÿ	ö	Ü	ø	£	Ø	×	ƒ
A0h	á	í	ó	ú	ñ	Ñ	ª	º	¿	®	¬	½	¼	¡	«	»
B0h	░	▒	▓	│	┤	Á	Â	À	©	╣	║	╗	╝	¢	¥	┐
C0h	└	┴	┬	├	─	┼	ã	Ã	╚	╔	╩	╦	╠	═	╬	¤
D0h	ð	Đ	Ê	Ë	È	ı	Í	Î	Ï	┘	┌	█	▄	¦	Ì	▀
E0h	ó	ß	ô	ò	õ	Õ	µ	þ	Þ	Ú	Û	Ù	ý	Ý	¯	´
F0h	‾	±	=	¾	¶	§	÷	¸	°	¨	·	1	3	2	■	

5.2.3 CP-858 (Multilingual + Euro Symbol)

	00h	01h	02h	03h	04h	05h	06h	07h	08h	09h	0Ah	0Bh	0Ch	0Dh	0Eh	0Fh
80h	Ç	ü	é	â	ä	à	å	ç	ê	ë	è	ï	î	ì	Ä	Å
90h	É	æ	Æ	ô	ö	ò	û	ù	ÿ	ö	Ü	ø	£	Ø	×	ƒ
A0h	á	í	ó	ú	ñ	Ñ	ª	º	¿	®	¬	½	¼	¡	«	»
B0h	░	▒	▓	│	┤	Á	Â	À	©	╣	║	╗	╝	¢	¥	┐
C0h	└	┴	┬	├	─	┼	ã	Ã	╚	╔	╩	╦	╠	═	╬	¤
D0h	ð	Đ	Ê	Ë	È	€	Í	Î	Ï	┘	┌	█	▄	¦	Ì	▀
E0h	ó	ß	ô	ò	õ	Õ	µ	þ	Þ	Ú	Û	Ù	ý	Ý	¯	´
F0h	‾	±	=	¾	¶	§	÷	¸	°	¨	·	1	3	2	■	

5.2.4 Katakana for Japan

	00h	01h	02h	03h	04h	05h	06h	07h	08h	09h	0Ah	0Bh	0Ch	0Dh	0Eh	0Fh
80h	α	β	γ	⊿	є	η	θ	λ	μ	π	ρ	σ	τ	Φ	Ω	∑
90h	£	§	IE	IR	∫	x̄	Ā	$^{-1}$	^{2}	^{3}	^{x}	½	$^{1}/$	√	±	■
A0h		｡	｢	｣	､	･	ｦ	ｧ	ｨ	ｩ	ｪ	ｫ	ｬ	ｭ	ｮ	ｯ
B0h	ｰ	ｱ	ｲ	ｳ	ｴ	ｵ	ｶ	ｷ	ｸ	ｹ	ｺ	ｻ	ｼ	ｽ	ｾ	ｿ
C0h	ﾀ	ﾁ	ﾂ	ﾃ	ﾄ	ﾅ	ﾆ	ﾇ	ﾈ	ﾉ	ﾊ	ﾋ	ﾌ	ﾍ	ﾎ	ﾏ
D0h	ﾐ	ﾑ	ﾒ	ﾓ	ﾔ	ﾕ	ﾖ	ﾗ	ﾘ	ﾙ	ﾚ	ﾛ	ﾜ	ﾝ	ﾞ	ﾟ
E0h	↑	↓	←	→	↵	↳	↱	↰	⇤	⇥	”	“	«	»	∴	∵
F0h	≤	≥	≠	≒	‖	|	⊥	∞	α	∼	~	≡	⫪	♀	⊕	Θ

5.2.5 Slawie

	00h	01h	02h	03h	04h	05h	06h	07h	08h	09h	0Ah	0Bh	0Ch	0Dh	0Eh	0Fh
80h	Ç	ü	é	â	ä	ů	ć	ç	ļ	ë	õ	õ	î	ź	ä	ć
90h	é	Ĺ	í	ô	ö	Ľ	ĭ	ś	ś	Ö	Ü	ť	ť	ł	x	č
A0h	á	í	ó	ú	ą	ą	ž	ž	ę	ę		ź	č	ş	«	»
B0h	░	▒	▓	│	┤	á	â	ě	ş					ŧ	ŧ	
C0h					─	┼	ă	ă						═		¤
D0h	đ	đ	ď	ë	ď	ň	í	î	ě			█	▄	ţ	ů	▀
E0h	ó	β	ô	ń	ń	ň	š	š	ŕ	ú	ŕ	ũ	ý	ý	ţ	´
F0h	–	˜	˛	ˇ	˘	§	÷	¸	°	¨	˙	ũ	ř	ř	■	

5.2.6 Russia

	00h	01h	02h	03h	04h	05h	06h	07h	08h	09h	0Ah	0Bh	0Ch	0Dh	0Eh	0Fh
80h	А	Б	В	Г	Д	Е	Ж	З	и	Й	К	Л	М	Н	О	П
90h	Р	С	Т	У	Ф	Х	Ц	Ч	Ш	Щ	Ъ	Ы	Ь	Э	Ю	Я
A0h	а	б	в	г	д	е	ж	з	и	й	к	л	м	н	о	п
B0h																
C0h																
D0h																
E0h	р	с	т	у	ф	х	ц	ч	ш	щ	ъ	ы	ь	Э	ю	я
F0h	∂	Ғ	Қ	Ң	Ө	Ұ	Ү	Һ	∂	ғ	қ	ң	ө	ұ	Y	

5.2.7 CP-860 (Portuguese)

	00h	01h	02h	03h	04h	05h	06h	07h	08h	09h	0Ah	0Bh	0Ch	0Dh	0Eh	0Fh

80h	Ç	ü	é	â	ã	à	Á	ç	ê	Ê	è	Í	Ô	ì	Ã	Â
90h	É	À	È	ô	õ	ò	Ú	ù	Ì	Õ	Ü	¢	£	Ù	Pt	Ó
A0h	á	í	ó	ú	ñ	Ñ	a	o	¿	®	¬	½	¼	¡	«	»
B0h	░	▒	▓	│	┤	╡	╢	╖	╕	╣	║	╗	╝	╜	╛	┐
C0h	└	┴	┬	├	─	┼	╞	╟	╚	╔	╩	╦	╠	═	╬	╧
D0h	╨	╤	╥	╙	╘	╒	╓	╫	╪	┘	┌	█	▄	▌	▐	▀
E0h	α	β	Γ	π	Σ	σ	µ	τ	Φ	θ	Ω	δ	∞	ø	є	∩
F0h	≡	±	≥	≤	⌠	⌡	÷	≈	°	•	·	√	^{n}	^{2}	■	

5.2.8 Greek

	00h	01h	02h	03h	04h	05h	06h	07h	08h	09h	0Ah	0Bh	0Ch	0Dh	0Eh	0Fh
80h	Α	Β	Γ	Δ	Ε	Ζ	Η	Θ	Ι	Κ	Λ	Μ	Ν	Ξ	Ο	Π
90h	Ρ	Σ	Τ	Υ	Φ	Χ	Ψ	Ω	α	β	γ	δ	ε	ζ	η	θ
A0h	ι	κ	λ	μ	ν	ξ	ο	π	ρ	σ	ς	τ	υ	φ	χ	ψ
B0h																
C0h																
D0h																
E0h	ω															
F0h										£				-		

5.2.9 CP-852 (Hungary)

	00h	01h	02h	03h	04h	05h	06h	07h	08h	09h	0Ah	0Bh	0Ch	0Dh	0Eh	0Fh
80h	Ç	ű	é	â	ä	ů	ć	ç	ł	ë	Ő	ő	î	Ź	Ä	Ć
90h	É	Ĺ	Í	ô	ö	Ľ	ľ	Ś	ś	Ö	Ü	Ť	ť	Ł	x	Č
A0h	á	í	ó	ú	Ą	ą	Ž	ž	Ę	ę	¬	ź	Č	ş	«	»
B0h	░	▒	▓	│	┤	Á	Â	Ě	Ş	╣	║	╗	╝	Ż	ż	┐
C0h	└	┴	┬	├	─	┼	Ä	ă	╚	╔	╩	╦	╠	═	╬	¤
D0h	đ	Đ	Ď	Ë	ď	Ň	Í	Î	ě	┘	┌	█	▄	Ţ	Ů	▀
E0h	Ó	ß	Ô	Ń	ń	ň	Š	š	Ŕ	Ú	ŕ	Ű	ý	Ý	ţ	´
F0h	–	˜	˛	ˇ	˘	§	÷	¸	°	¨	˙	ũ	Ř	ř	■	

5.2.10 CP-862 (Hebrew)

	00h	01h	02h	03h	04h	05h	06h	07h	08h	09h	0Ah	0Bh	0Ch	0Dh	0Eh	0Fh
80h	א	ב	ג	ד	ה	ו	ז	ח	ט	י	ך	כ	ל	ם	מ	ן

90h	נ	ס	ע	ף	פ	ץ	צ	ק	ר	ש	ת	¢	£	¥	Pts	ƒ
A0h	á	í	ó	ú	ñ	Ñ	ª	º	¿	⌐	¬	½	¼	¡	«	»
B0h	░	▒	▓	│	┤	╡	╢	╖	╕	╣	║	╗	╝	╜	╛	┐
C0h	└	┴	┬	├	─	┼	╞	╟	╚	╔	╩	╦	╠	═	╬	╧
D0h	╨	╤	╥	╙	╘	╒	╓	╫	╪	┘	┌	█	▄	▌	▐	▀
E0h	α	ß	Γ	π	Σ	σ	µ	τ	Φ	Θ	Ω	δ	∞	φ	ε	∩
F0h	≡	±	≥	≤	⌠	⌡	÷	≈	°	∙	·	√	^{n}	^{2}	■	

5.2.11 CP-863 (Canadian- French)

	00h	01h	02h	03h	04h	05h	06h	07h	08h	09h	0Ah	0Bh	0Ch	0Dh	0Eh	0Fh
80h	Ç	ü	é	â	Â	à	¶	ç	ê	ë	è	ï	î	=	Ä	§
90h	É	È	Ê	ô	Ë	Ï	û	ù	¤	Ô	Ü	¢	£	Ù	Û	ƒ
A0h	¦	í	‘	ó	ú	¨	¸	¯	Î	⌐	¬	½	¼	¾	«	»
B0h	░	▒	▓	│	┤	╡	╢	╖	╕	╣	║	╗	╝	╜	╛	┐
C0h	└	┴	┬	├	─	┼	╞	╟	╚	╔	╩	╦	╠	═	╬	╧
D0h	╨	╤	╥	╙	╘	╒	╓	╫	╪	┘	┌	█	▄	▌	▐	▀
E0h	α	ß	Γ	π	Σ	σ	µ	τ	Φ	Θ	Ω	δ	∞	φ	ε	∩
F0h	≡	±	≥	≤	⌠	⌡	÷	≈	°	∙	·	√	^{n}	^{2}	■	

5.2.12 CP-865 (Nordic)

	00h	01h	02h	03h	04h	05h	06h	07h	08h	09h	0Ah	0Bh	0Ch	0Dh	0Eh	0Fh
80h	Ç	ü	é	â	ä	à	å	ç	ê	ë	è	ï	î	ì	Ä	Å
90h	É	æ	Æ	ô	ö	ò	û	ù	ÿ	Ö	Ü	ø	£	Ø	Pt	ƒ
A0h	á	í	ó	ú	ñ	Ñ	ª	º	¿	®	¬	½	¼	¡	«	¤
B0h	░	▒	▓	│	┤	╡	╢	╖	╕	╣	║	╗	╝	╜	╛	┐
C0h	└	┴	┬	├	─	┼	╞	╟	╚	╔	╩	╦	╠	═	╬	╧
D0h	╨	╤	╥	╙	╘	╒	╓	╫	╪	┘	┌	█	▄	▌	▐	▀
E0h	α	ß	Γ	π	Σ	σ	µ	τ	Φ	θ	Ω	δ	∞	ø	ε	∩
F0h	≡	±	≥	≤	⌠	⌡	÷	≈	°	•	·	√	^{n}	^{2}	■	

5.2.13 CP-866 (Cyrillic)

	00h	01h	02h	03h	04h	05h	06h	07h	08h	09h	0Ah	0Bh	0Ch	0Dh	0Eh	0Fh
80h	А	Б	В	Г	Д	Е	Ж	З	И	Й	К	Л	М	Н	О	П
90h	Р	С	Т	У	Ф	Х	Ц	Ч	Ш	Щ	Ъ	Ы	Ь	Э	Ю	Я

A0h	а	б	в	г	д	е	ж	з	и	й	к	л	м	н	о	п
B0h	░	▒	▓	│	┤	╡	╢	╖	╕	╣	║	╗	╝	╜	╛	┐
C0h	└	┴	┬	├	─	┼	╞	╟	╚	╔	╩	╦	╠	═	╬	╧
D0h	╨	╤	╥	╙	╘	╒	╓	╫	╪	┘	┌	█	▄	▌	▐	▀
E0h	р	с	т	у	ф	х	ц	ч	ш	щ	ъ	ы	ь	э	ю	я
F0h	Ё	ё	Є	є	Ї	ї	Ў	ў	°	∙	·	√	№	¤	■	

5.2.14 Windows-1251 (Cyrillic)

	00h	01h	02h	03h	04h	05h	06h	07h	08h	09h	0Ah	0Bh	0Ch	0Dh	0Eh	0Fh
80h	Ђ	Ѓ	‚	ѓ	„	…	†	‡	€	‰	Љ	‹	Њ	Ќ	Ћ	Џ
90h	ђ	‘	’	“	”	•	–	—		™	љ	›	њ	ќ	ћ	џ
A0h		Ў	ў	Ј	¤	Ґ	¦	§	Ё	©	Є	«	¬		®	Ї
B0h	°	±	І	і	ґ	µ	¶	·	ё	№	є	»	ј	Ѕ	ѕ	ї
C0h	А	Б	В	Г	Д	Е	Ж	З	И	Й	К	Л	М	Н	О	П
D0h	Р	С	Т	У	Ф	Х	Ц	Ч	Ш	Щ	Ъ	Ы	Ь	Э	Ю	Я
E0h	а	б	в	г	д	е	ж	з	и	й	к	л	м	н	о	п
F0h	р	с	т	у	ф	х	ц	ч	ш	щ	ъ	ы	ь	э	ю	я

5.2.15 Windows-1252

	00h	01h	02h	03h	04h	05h	06h	07h	08h	09h	0Ah	0Bh	0Ch	0Dh	0Eh	0Fh
80h	€		‚	ƒ	„	…	†	‡	ˆ	‰	Š	‹	Œ		Ž	
90h		‘	’	“	”	•	–	—	˜	™	š	›	œ		ž	Ÿ
A0h		¡	¢	£	¤	¥	¦	§	¨	©	ª	«	¬		®	¯
B0h	°	±	²	³	´	µ	¶	·	¸	¹	º	»	¼	½	¾	¿
C0h	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
D0h	Ð	Ñ	Ò	Ó	Ô	Õ	Ö	×	Ø	Ù	Ú	Û	Ü	Ý	Þ	ß
E0h	à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï
F0h	ð	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü	ý	þ	ÿ

5.2.16 Windows-1255 (Hebrew)

	00h	01h	02h	03h	04h	05h	06h	07h	08h	09h	0Ah	0Bh	0Ch	0Dh	0Eh	0Fh
80h	€		‚	ƒ	„	…	†	‡	ˆ	‰		‹				
90h		‘	’	“	”	•	–	—	˜	™		›				
A0h		¡	¢	£	₪	¥	¦	§	¨	©	×	«	¬	-	®	¯

B0h	°	±	²	³	´	µ	¶	·	¸	¹	÷	»	¼	½	¾	¿
C0h	ְ	ֱ	ֲ	ֳ	ִ	ֵ	ֶ	ַ	ָ	ֹ		ֻ	ּ	ֽ	־	ֿ
D0h	׀	ׁ	ׂ	׃	װ	ױ	ײ	׳	״	,	:	;	.	!	?	
E0h	א	ב	ג	ד	ה	ו	ז	ח	ט	י	ך	כ	ל	ם	מ	ן
F0h	נ	ס	ע	ף	פ	ץ	צ	ק	ר	ש	ת					

5.2.17 Windows-1257 (Baltic)

	00h	01h	02h	03h	04h	05h	06h	07h	08h	09h	0Ah	0Bh	0Ch	0Dh	0Eh	0Fh
80h	€		‚		„	…	†	‡		‰		‹		¨	ˇ	¸
90h		‘	’	“	”	•	–	—		™		›		¯	˛	
A0h			¢	£	¤		¦	§	Ø	©	Ŗ	«	¬	–	®	Æ
B0h	°	±	²	³	´	µ	¶	·	ø	¹	ŗ	»	¼	½	¾	æ
C0h	Ą	Į	Ā	Ć	Ä	Å	Ę	Ē	Č	É	Ź	Ė	Ģ	Ķ	Ī	Ļ
D0h	Š	Ń	Ņ	Ó	Ō	Õ	Ö	×	Ų	Ł	Ś	Ū	Ü	Ż	Ž	ß
E0h	ą	į	ā	ć	ä	å	ę	ē	č	é	ź	ė	ģ	ķ	ī	ļ
F0h	š	ń	ņ	ó	ō	õ	ö	÷	ų	ł	ś	ū	ü	ż	ž	˙

Appendix A - Command Details

A.1. Overwrite mode

In this mode, the cursor will move rightward and begin from the upper left-end position. When the cursor has reached the end of the upper line, the cursor will move down to the bottom left-end position to continue. When the cursor has reached the end of the bottom line, it will move to up the upper left-end position and overwrite the previous characters.

A.2. Vertical scroll mode

In this mode, the cursor will move rightward. The cursor will begin from the upper left-end position until it has reached the end of the upper line. The cursor will then move down to the bottom left-end position to continue until it has reached the end of the bottom line.

A.3. Horizontal scroll mode

In this mode, the extent of the cursor activity is bound by a predefined range, limited to the upper line. (Please refer to Set or cancel window command), where the default window is the whole upper line. The cursor will begin from the left-end of the range and move rightward until it reached the end of the range, to continue, the characters that comes thereafter will start pushing the previous characters leftward from the right-end, scrolling the characters to the left.

A.4. Set the string display mode and write string to display

Set the string display mode, write to upper or lower line d1 d2 d3 … dn {1≦n≦20}. 'A' stands for the upper line, 'B' stands for the lower line. The string display mode will be cancelled and the display will return to the previous mode after receiving CLR or CAN.

A.5. Upper line message continuous scroll

The message (previously defined) will scroll continuously in the horizontal direction until a new command is received.

A.6. Move cursor left

When the current cursor is at the left-end position, this command operates differently depending on the display mode.

- **Overwrite mode:** When the cursor reached the left-end of the lower line, it will continue to the right-end of the upper line, overwrite previous characters. When it reached the left end of the upper line, it will continue to the right-end of the lower line.
- **Vertical scroll mode:** When the cursor reached the left-end of the lower line, the lower line will scroll up and replace the previous upper line, the lower line will be cleared and the cursor will continue to the right end of the lower line.
- **Horizontal scroll mode:** The cursor will remain stationary.

A.7. Move cursor right

Move the cursor to the right. When the cursor has reached the right-end, this command operates differently depending on the display mode.

- **Overwrite mode:** When the cursor has reached the right-end of the lower line, it will continue to the left-end of the upper line and overwrite previous characters. When it has reached the right-end of the upper line, it will continue to the right-end of the lower line.
- **Vertical scroll mode:** When the cursor has reached the right-end of the lower line, the lower line will scroll up to replace the upper line, the lower line is cleared and ready to continue characters thereafter.
- **Horizontal scroll mode:** The cursor will remain stationary.

A.8. Move cursor up

Move the cursor up one line. When the cursor is on the upper line, this command operates differently depending on the display mode.

- **Overwrite mode:** The cursor is moved to the same column the lower line.
- **Vertical scroll mode:** The characters displayed on the upper line is scrolled to the lower line, and the upper line is cleared. The cursor will remain at the same position.
- **Horizontal scroll mode:** The cursor will remain stationary.

A.9. Move cursor down

Move the cursor down one line. When the cursor is on the lower line, this command operates differently depending on the display mode.

- **Overwrite mode:** The cursor is moved to the same column on the upper line.
- **Vertical scroll mode:** The characters displayed on the lower line are scrolled to the upper line, and the lower line is cleared. The cursor will remain at the same position.
- **Horizontal scroll mode:** The cursor will remain stationary.

A.10. Move cursor to home position

The cursor will move to the left-end position of the upper line.

A.11. Move cursor to left-most position

The cursor will be moved to the left-end position of the current line.

A.12. Move cursor to right-most position

The cursor will be moved to the right-end position of the current line.

A.13. Move cursor to bottom position

The cursor will be moved to the right-end position on the lower line.

A.14. Move cursor to specified position

The cursor will be moved to column x on line y.

A.15. Initialize display

The data in the input buffer will be cleared and reset from default.

A.16. Reset the window

Reset the window on the display.
When s=0, the window is cancelled (values: x1, x2, and y are not required.)
When s=1, the window will be reset (values: x1, x2, and y are required.)
The x1 and x2 set the position of the left column and right column, respectively, of the window.
The y sets the upper line or the lower line of the window.
This function is valid within the horizontal mode.

A.17. Clear display screen and clear string mode

All the display characters will be cleared, and the string mode will be cancelled.

A.18. Clear current line and cancel string mode

The current line is cleared, and the string mode is cancelled.

A.19. Brightness adjustment

Adjust the brightness of the vacuum fluorescent display.
When n=3, brightness=70%
When n=4, brightness=100%

A.20. Set cursor ON or OFF

When n=0, cursor is OFF
When n=1, cursor is ON

Appendix B - Control Code Set

HEX	CODE	HEX	CODE
00H	NULL	10H	DLE
01H	SOH, MD1	11H	DC1
02H	STX, MD2	12H	DC2
03H	ETX, MD3	13H	DC3
04H	EOT, MD4	14H	DC4
05H	ENQ, MD5	15H	NAK
06H	ACK, MD6	16H	SYN
07H	BEL, MD7	17H	ETB
08H	BS, MD8	18H	CAN
09H	HT	19H	EM
0AH	LF	1AH	SUB
0BH	VT, HOM	1BH	ESC
0CH	FF, CLR	1CH	FS
0DH	CR	1DH	GS
0EH	SO, SLE1	1EH	RS, SF1
0FH	SI, SLE2	1FH	US, SF2